

SEARCH FOR NEAR- EARTH OBJECT WITH

GROUND- BASED E L ECTRO-OPTI CAL , DEEP SPACE SURVEILLANCE (GEODSS) ASSETS

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This is a brief review of recent plans and current status of the adaptation of an Air Force wide field GEODSS telescope for the discovery and followup of Near-Earth Objects (NEOs). The proposed search program will focus on the discovery of natural objects and will proceed on a non-interference basis, i.e. avoiding any impact on GEODSS' dedicated purpose of tracking and monitoring Earth orbiting spacecraft.

In September, 1992, JPL representatives had an initial meeting with GEODSS personnel and saw their facilities in Maui where use of GEODSS' telescopes were discussed in terms of using these existing sensors for the detection of NEOs. A result of these meetings was a test run at the GEODSS, Socorro, N. Mexico location to evaluate the tracking and astrometric accuracy of an upcoming close approach of NEA, (4179) Toutatis. In mid-December, a visit was made to Socorro, to participate and observe the passage of Toutatis. Data was obtained with GEODSS' I-M telescopes and the observed positions were compared with the precise ephemeris. Position measurements were acquired to an accuracy of 2-3 arcseconds. Although not quite adequate for astrometric observations, the results were better than anticipated based upon the current Ebsicon (silicon intensifier tubes) system. If we reach an agreement to use these Air Force assets, these older systems would be replaced with Charged Couple Devices (CCDs) which would provide the necessary accuracy for a NEO discovery program.

A presentation was made to Major C. Bennett, Col. O. Jensen, Col. Berry and other high ranking Air Force personnel at Peterson Air Force Base in Colorado Springs, Co. in January, 1993. They have administrative oversight of all of the Air Forces' GEODSS telescope facilities in Maui, Socorro, and Diego Garcia. A review was presented of the results from the Toutatis tracking and astrometry tests. We proposed and requested further access for evaluation of the GEODSS system so we could make serious plans to proceed if no major difficulties were identified. In parallel, with this request-, we inquired whether a decision could be made by U.S. Space Command for access to GEODSS and that we be permitted to use the Air Force system in an updated version of their present configuration.

In March, 1993, JPL received approval from the U. S. Space Command, to use the GEODSS assets with the understanding in so doing, that there would not be significant impact on their military space surveillance mission. They have requested details of our requirements and have indicated that they are prepared to work with us to resolve any issues associated with our use of the GEODSS sensors.